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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,762	07/26/2001	Robert S. Vinson	GCSD-1157 (51231)	7467

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EXAMINER

DINH, TUAN T

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/915,762

Applicant(s)

VINSON ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 9-18,29,30 and 32-37 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-27 is/are allowed.
- 6) ☒ Claim(s) 1-8,28 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

Applicant's election of Specie I (figure 4) in Paper No. 9 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specie I does not read on claims 10-18, and 29 because those claims teach a thin film metallization layer.

Also, Claims 9, 22, and 30 do not read on figure 4; therefore, claims 9-18, 22, and 29-30 are withdrawn from further consideration as being non-elected claims.

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "substrate 12 in figures 1-2, logic pins 18 in figure 2" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Objections***

3. Claims 1, 8, 19 are objected to because of the following informalities:

Claim 1, lines 9-10, change "each IC die" to --the IC die--.

Claim 1, line 18, change "a die pad and from a die pad to a substrate bonding pad" to --the die pads and from the die pads to the substrate bonding pads--.

Claim 8, line 2, change "a wire bond" to --the wire bond--.

Claim 19, line 5, after "including die pads" please, insert --, each die pad having a logic pin--.

Claim 19, lines 19-20, change "a logic pin and from a logic pin to a substrate bonding pad" to --the logic pin and from the logic pin to the substrate bonding pad--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, lines 2-3, it is confuse. Applicant recites in claim 1 of "a decoupling capacitor assembly" to mounted on a IC die, so how "a plurality of decoupling capacitor assemblies" can be mounted on the IC die that is shown in figure 4 or compare to figure 2?

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-5, 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Akram (U. S. Patent 6,441,483).

As best understood to claims 1-3, Akram discloses an integrated circuit chip module as shown in figure 1 comprising:

a substrate (20, column 7, line 52);

an integrated circuit die (30, column 7, line 52) mounted on the substrate and having die pads (84, column 8, line 11) and an exposed surface opposite from the substrate (20);

a plurality of substrate bonding pads (82, column 7, line 59) positioned on the substrate adjacent the integrated circuit die; and

a decoupling capacitor assembly (capacitor 50 and chip 40) mounted on the integrated circuit die (30), said decoupling capacitor assembly comprising a capacitor carrier (40) secured onto the exposed surface of the integrated circuit die, and

a decoupling capacitor (50, column 8, lines 47-48) carried by the capacitor carrier; and a wire bond (60) extending from the decoupling capacitor assembly to the die pads and from the die pads to the substrate bonding pads (82).

As to claims 4-5, Akram discloses the module as shown in figure 1 further comprising an adhesive securing said decoupling capacitor to said capacitor carrier, and further comprising an adhesive securing said capacitor carrier to said integrated circuit die (column 8, lines 15-25).

As to claim 8, Akram discloses the module in figure 1 the wire bond (60) extends from said decoupling capacitor (50) to a logic pin (pad 84) of said integrated circuit die (30).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6-7, 28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram ('483) in view of Naba et al. (U. S. Patent 6,284,985).

Akram discloses all the limitations of the claims invention, except for said capacitor carrier is formed from an aluminum nitride substrate having ranges in thickness from about 5 mil to about 50 mil.

Naba teaches a ceramic circuit board in figure 1 comprising a AlN substrate having a thickness from 5-50mil.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a teaching's Naba to employ the assembly of Akram in order to provide a high thermal conductivity and excellent in heat radiating properties.

***Allowable Subject Matter***

10. Claims 19-27 are allowed.
11. The following is an examiner's statement of reasons for allowance:

Neither the references cited nor the cited references teach or suggest a multi chip module in combination comprising: a plurality of decoupling capacitor assemblies positioned on each integrated circuit die, each decoupling capacitor assembly comprising an aluminum nitride capacitor carrier secured onto the exposed surface of the integrated circuit die, and a decoupling capacitor carried by the capacitor carrier; and at least one wire bond extending from each decoupling capacitor assembly to the logic pin and from the logic pin to the substrate bonding pad.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Heinks et al., Ueno et al., McShane, Malladi et al., Juso et al., Liang et al., and Hashemi disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
KAMAND CUNEO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

TD  
April 4, 2003